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AMSAT NEWS SERVICE
ANS-064

ANS is a free, weekly, news and information service of AMSAT North America, The Radio Amateur Satellite Corporation. ANS reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

Please send any amateur satellite news or reports to:
ans-editor@amsat.org

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ANS-064 AMSAT News Service Weekly Bulletins

AMSAT News Service Bulletin 064.01
>From AMSAT HQ SILVER SPRING, MD.
March 4, 2012
To All RADIO AMATEURS
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AMSAT Theme at Dayton 2012: Running with Fox

The 2012 Dayton Hamvention will be held this year on 18 - 20 May 2012. As has been the case for the many years Hamvention will be at the Hara Arena Complex on the north side of Dayton. AMSAT will occupy the same booths (444-449) in Ball Arena, right across from the ARRL area and just inside the door from the Satellite Demonstration area.

The AMSAT theme for 2012 is "Running with Fox". We will have multiple exhibits of the new AMSAT satellite on display.

Visit AMSAT's Dayton Hamvention page for all details on activities:
http://www.amsat.org/amsat-new/hamvention/2012/Dayton.php

Some of the activities will include:

+ Life size Fox models will be on display as well as diagrams of the modules inside the 10cm square satellite.

+ Operational prototype of ARISSat-1 on display.

+ AMSAT Thursday Night Get-together at the Tickets Pub & Eatery.

+ The sixth annual AMSAT/TAPR Banquet will be Friday night May 18 at the Kohler Banquet Center. The price for the Banquet is $30. Seating is limited and reservations are required. Follow the

links on AMSAT's Dayton page.

+ The AMSAT Forum will be on Saturday May 19.

AMSAT has a limited block of rooms reserved at the Country Inn & Suites in Fairborn, OH. Please contact Martha at the AMSAT office for room price and availability during Hamvention. Priority for rooms will be given to those volunteering to work in the AMSAT booth for multiple 2 hour shifts during Hamvention. The hotel web page is: http://www.amsat.org/amsat-new/hamvention/2012/Hotel.php

The phone number for the AMSAT office is 301-589-6062. Other hotels in the immediate area of the Country inn & Suites include the Fair- field Inn, Ramada Inn, Hampton Inn, Fairborn Holiday Inn, Red Roof Inn and the Homewood Suites if additional accommodations are needed.

Further information on Hamvention 2012, including advance ticket sales and motel accommodations, can be found at http://www.hamvention.org.

Dick Daniels, W4PUJ Memorial Service Video Posted

Bob McGwier, N4HY has posted a video of the February 25 memorial service attended by family, friends, and colleagues for AMSAT's Dick Daniels, W4PUJ who passed away on February 14, 2012:

http://youtu.be/pGhn1eC52Wo

AMSAT President Barry Baines, WD4ASW read excerpts from the obituary written by Jan King, W3GEY/VK4GEY and included personal comments of his experience knowing Dick and working with him. The text of Dick's obituary is posted on the AMSAT web at: http://tinyurl.com/W4PUJ-Obituary.

Barry observed in his comments at the memorial service that NASA announced AMSAT Fox-1 satellite's acceptance into their ELaNa launch program on February 14, the day Dick passed away. Dick's legacy for amateur radio in space will continue.

Bob recalled, "Dick was always supportive and helpful to me and like all who knew him, understand the size of our loss. Dick was the epitome of solidarity, always honoring his obligations, with a big sense of responsibility with no obvious sense of entitlement to anyone's thanks. Dick was always seemingly asking himself 'what have I done for you lately?' We've lost the irreplaceable."

Eric Rosenberg, W3DQ wrote of his memories of Dick, "He was a great guy, wonderful to work with, both professionally and within AMSAT.
He was treasure trove of information and defined corporate knowledge and memory. His collection of Oscar 10 telemetry on those hard sectored disks was legendary around here, but not as much as his pool table, upon which many of the early satellites were put together."

Bob, N4HY took a collection of photographs with his phone camera which has added to his online album: http://n4hy.smugmug.com/AMSAT/Dick-Daniels-W4PUJ-Memorial

[ANS thanks Bob McGwier, N4HY, Eric Rosenberg, W3DQ, Jan King W3GEY/ VK4GEY, and AMSAT President Barry Baines, WD4ASW for the above information]

COMPASS-1 Satellite End of Mission

The COMPASS-1 CubeSat was designed and built by students from the Aachen University of Applied Sciences in Aachen, Germany. It has been in orbit since its launch from India on April 28, 2008.

This week Mike Rupprecht, DK3WN reported on his DK3WN SatBlog that on Saturday, February 25 a single beacon was received. COMPASS-1 underwent a complete restart and the thresholds for heater and battery voltages were set to new levels. Battery temperatures tracked with the received telemetry data have shown some very cold spikes. This may be affecting operation of the satellite.

On March 3, Mike received the following message from Professor Dr. Bernd Dachwald, Faculty of Aerospace Engineering FH Aachen at the University of Applied Sciences:

> Dear supporters and friends of our COMPASS-1 mission,
>
> First, let me thank you very much for your support in trying to save the life of our COMPASS-1 satellite during the last days, but also during the last years of "routine" operations.
>
> It seems that our mission now comes to an end. The projected lifetime of COMPASS-1 was half a year. The tiny guy has outperformed this value by a factor of more than seven. April 28th would have been its 4th birthday and if it was a human, it would now be about 500 years old (Cubesat-years are short).
>
> So, if you have more important things to do (and I guess so), we cannot expect you to continue your efforts in saving its live. With your support, you have made things possible that we would never have been able to achieve with our own resources and I appreciate your support very much.
>
> So, COMPASS-1, rest in peace. (Nevertheless, if you still want to try to awake it from the dead, feel free to do so.)
>
> I hope that we will soon be able to build and launch COMPASS-2 and that you will be still available, all over the world, as a ground station to command and fly our new bird. We will keep you informed.
>
> Cheers and thanks for all,
> Bernd

Operators may periodically listen for the COMPASS-1 CW beacon on 437.275 MHz CW beacon every 3 minutes. Any reports are very appreciated.

The DK3WN SatBlog tracked monitoring and attempts at recovery over the past week:

+ On Sunday, February 26 no signals were heard from COMPASS-1
+ On Monday, February 27 no signals were heard; Several attempts to reset the satellite were unsuccessful.
+ On Tuesday, February 28 first report received after nothing heard for two days. Decoded telemetry showed the satellite had reset. Control stations reset voltage and heater thresholds to conserve power:

```
  Power Level             Critical Battery Capacity
  Heater Active           Battery Heater ON
  Power Safe Counter      0       <� Counters reset to 0
  Emergency Mode Counter  0
  Battery Voltage         2.82 V
  Battery Current         0.00 mA
  Battery Temperature     0 °C    <��attery temperature
COLD!

  The usual operational threshold is for the heater to be on if the
  temperature inside goes under 10 deg. The batteries are weak and
  this has caused COMPASS-1 crash.

+ On Wednesday, February 29 Alan, ZL2BX could command COMPASS at
  19:25 UTC - all thresholds commands were accepted. COMPASS went
  into eclipse at 19:45 and into sunlight at 20:17 UTC. DK3WN set
  the thresholds at 20:20 UTC and got an confirmation beep for all
  commands. COMPASS is now in Emergency Mode and the beacon inter-
  val is 8 minutes. The heater is OFF which will help improve the
  voltage problem. Since all counters are zero it is assumed that
  COMPASS resets in every eclipse. Not sure if the threshold values
  are kept after reset during eclipse.

  Power Level             Critical Battery Capacity
  Heater Active           Battery Heater OFF <�Command worked!
  Power Safe Counter      0       <� Counters still reset to 0
  Emergency Mode Counter  0
  Battery Voltage         2.82 V
  Battery Current         0.00 mA
  Battery Temperature     3 °C    <��attery warming up
  (refer to: http://www.dk3wn.info/p/?p&334)

Please continue to monitor 437.275 MHz for the COMPASS-1 CW beacon.
Current status can be read on-line on the DK3WN SatBlog at:
http://www.dk3wn.info

Mike has written telemetry decoders for several satellites, including
COMPASS-1. These may be found at: http://www.dk3wn.info/software.shtml

[ANS thanks Mike Rupprecht, DK3WN for the above information]

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VO-52 Not Heard

Reports have been posted that India's VO-52 HAMSAT satellite, launched
on May 5, 2005 from India, has not been heard during expected passes
since February 28.

Summaries from stations monitoring for VO-52 cam be viewed at:
http://oscar.dcarr.org/

AMSAT INDIA Secretary Nitin, VU3TYG, posted on February 29 their last
known status, "We are aware of the current situation. Myself and Mani,
VU2WMY tried listening to the beacon and work thru the satellite during
the 04:05 UTC pass over India but nothing was heard."

Nitin will post further updates when more news is available from ISRO.
Amateur satellite operators are encouraged to post VO-52 status on
http://oscar.dcarr.org/ Status Page.

[ANS thanks AMSAT INDIA Secretary Nitin, VU3TYG for the above
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information]

Satellite Special Events Announced

TP8 - France March 9-11

The Council of Europe Radio Amateur Club (CERAC - TP2CE) will be active as TP8CE between March 9-11 to celebrate the 40th anniversary of the European Youth Center. Operations planned on all HF bands and modes, and possibly the satellites. QSL via F5LGF. An online log search will be available at: http://ewwa.free.fr

6H - Mexico April 13-18

Members of the Grupo DXXE will activate the special event callsign 6H6IARU between April 13-18 to celebrate the 87th anniversary of the founding of the International Amateur Radio Union (IARU), and to celebrate "World Amateur Radio Day" on April 18th.

This year's theme for the "World Amateur Radio Day" is Amateur Radio Satellites: "Celebrating 50 Years in Space" in remembrance the launch of OSCAR 1 on December 12, 1961, and the launch of OSCAR 2 on June 2, 1962.

Operations will be on all bands between 160-6 meters, as well as the amateur radio satellites from different Grid Locators throughout Mexico. QSOs with this station are valid for the IARU Region 2 award, the various FMRE awards and the DXXE award <www.dxxe.org>. QSL via N7RO or LoTW.

[ANS thanks Ohio/Penn DX Bulletin No. 1051 for the above information]

Coverage of Next Cubesats on AMSAT-UK Web

AMSAT-UK has compiled a series of very informative web page reports about upcoming Cubesat launches. Read up on the next flock of birds slated for launch. Follow the links to photos, satellite videos, and additional technical data on the AMSAT-UK web.

Antares Launch Slip Delays Dove-1 Satellite
http://www.uk.amsat.org/5061

The 3U amateur radio satellite Dove-1 (145.825 MHz AX.25 FM) was originally planned to launch on the Antares launcher on February 28 but reports indicate it may be Fall before it is launched.

Space.com reports that on February 21 Orbital Sciences Corporation announced a further slip and the launch of Antares could now be delayed until as late as September. Read the space.com report at: http://tinyurl.com/Antares-Delay (space.com)

The new Dove-1 (DO-17 was the original Dove satellite) will transmit on 145.825 MHz 1200 bps AFSK AX.25 FM downlink with telemetry data, including temp/power supply/current/RSSI/solar vector/acceleration, approximately every 30 seconds. The beacon can transmit at up to 1 watt

and will use a quarter wave monopole antenna cut from a tape measure.

It also has a 2.4 GHz half-duplex, spread spectrum radio with patch antenna that will be used for main payload downlink and telecommand uplink. The data rate will be 115 kbps.

The planned orbit is 280 by 270 km at 51.6 deg inclination which will give Dove-1 a lifetime of about 2 weeks before re-entry.

Vietnam Student CubeSat F-1
http://www.uk.amsat.org/5025

Vietnamese students have produced a video about their amateur radio CubeSat F-1, callsign XV1VN. The F-1 is an educational CubeSat to be launched in the summer of 2012. It will carry a low resolution C328 camera with 640?480 resolution and two Yaesu VX-3R transceivers using 145.980 and 437.485 MHz.

oVX-3R1
-Frequency: 437.485MHz, FM Narrow
-Power supply: directly from solar cells, only operates in sunlight -Output power: max 0.3W, half-wave dipole antenna -Modulation scheme: Morse code beacon (10 chars) using PWM CW -Beacon interval: every 30 seconds (configurable)

oVX-3R2
-Frequency: 145.980MHz , FM Narrow
-Power supply: rechargeable battery, operates in the dark by default but can be commanded to operate in sunlight as well -Output power: max 1.0W, half-wave dipole antenna -Modulation scheme: AFSK 1200bps, half duplex -Telemetry interval: one AX.25 packet every 30 seconds

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TechEdSat to use 'SatPhone'
http://www.uk.amsat.org/5018

TechEdSat will be deployed from the International Space Station (ISS). It is a 1U CubeSat that will demonstrate Plug and Play power architecture and two way communication via the satellite phone/data networks Iridium and Orbcomm.

There will be a 437MHz beacon transmitting 1 watt to 1/4 wave mono-pole. Commanding is via the commercial networks and there is a 2 week watchdog timer to stop the beacon in the event of no commands being received.

TechEdSat will be launched along with Raiko, FITSat-1, We-Wish and F-1 to the ISS aboard HTV-3, currently planned to launch July 18, 2012. >From there, it will be deployed into Low Earth Orbit using the JAXA J-SSOD deployer, from the Japanese Experiment Module (JEM also known as Kibo).

Wiki - TechEdSat http://en.wikipedia.org/wiki/TechEdSat
Kibo Robot Arm http://kibo.jaxa.jp/en/about/kibo/rms/

FITSAT-1 CubeSat to use 5.8 GHz and Optical Comms
http://www.uk.amsat.org/2037

The Amateur Radio CubeSat FITSAT-1 plans to transmit 115.2 kbps digital

data in the Amateur Satellite Service 5.8 GHz band and will also carry an Optical Communications experiment.

FITSAT-1 (aka NIWAKA) is a 1U CubeSat (10*10*10cm) that should be be deployed from the International Space Station by robot arm in late 2012. It will generate about 2W RF output using a 16W DC input.

The main mission will be to demonstrate high speed data transfer from a satellite, it can transmit a VGA-size (640×480 pixel) JPEG photograph in
only 5 to 6 seconds.

The second mission is to determine if a satellite can be made to appear as an "artificial star" using high-output LEDs in flash mode.
The light from this flash will be received by the ground station, which has a telescope with photo-multiplier linked to a 5.8GHz parabola antenna. This is a basic experiment to investigate the possibility of optical communication with satellites.

A UHF AX25 1k2baud transceiver will be carried for telemetry and telecommand purposes and a UHF CW beacon will also be provided. It will be deployed along with the satellites RAIKO and WEWISH into a 350x350km 51.6deg inclination orbit.

The following downlink frequencies have been coordinated by the IARU Satellite Frequency Coordination Panel: CW 437.250 MHz, FM 437.445 MHz, High speed data 5840.00 MHz.

Euroluna OZ9LUNA CubeSat Launch Update
http://www.uk.amsat.org/5153

Euroluna are a Danish amateur team participating in the $30 million Google Lunar X PRIZE contest to be the first privately funded team to land and drive a rover on the Moon. The President of Euroluna, Palle Haastrup OZ1HIA gives an update on the Romit1 CubeSat and plans for Romit2 and Romit3.

Romit1 is a 2U CubeSat that is planned to launch on the Interorbital Systems Neptune 9 rocket. After deployment Romit-1 will stabilize itself prior starting its engine to power itself into a higher orbit.
If everything goes well it should, after a year, be out in a 700 km orbit, having started in a 310 km orbit.

It is hoped that radio amateurs across the world will assist the team in retrieving the data sent down, for example, they can gather images from the six cameras. The downlink frequency is 437.505 MHz at 1200bps.

The group are currently looking for a launch opportunity for Romit2 as well as Romit3 that is planned to reach the Moon.

[ANS thanks AMSAT-UK for the above information]

April 18 World Amateur Radio Day 2012 - 50 Years in Space

Every year on April 18 the IARU celebrates World Amateur Radio Day to note its anniversary starting in 1925.

This year's theme for the World Amateur Radio Day 2012 is Amateur Radio

Satellites: "Celebrating 50 Years in Space" in remembrance the launch of OSCAR 1 on December 12, 1961, and the launch of OSCAR 2 on June 2, 1962.

The AMSAT News Service would like to publicize the events your group is planning for April 18, 2012. Just send the information to JoAnne, K9JKM (k9jkm@amsat.org) and we'll get the news out.

[ANS thanks the IARU for the above information]

Amateur Radio on the International Space Station (ARISS) Status Report
February 27, 2012

1. Upcoming School Contacts

An Amateur Radio on the International Space Station (ARISS) contact was successful for Parkside Elementary School in Atlanta, Georgia on Friday, March 2 at 16:42 UTC via station K6DUE in Greenbelt, Maryland. The ARISS contact is part of a comprehensive education plan which will pique students' interest in Science, Technology, Engineering and Math (STEM). An article about this contact appears on the NASA Talk Web site where ideas are shared about the contact and lesson plans. Contact audio may be available on NASA-TV.
http://nasatalk.com/component/resource/article/bylines/164-nasa-and-stem-resources-for-k-4/1722-parkside-elementary-school-to-connect-to-iss.html

The 5th Geniko Lykeio Katerinis in Katerini, Greece has been completed for their Amateur Radio on the International Space Station (ARISS) contact on Friday, March 2 at 17:03 UTC. This activity has been integrated into the school curriculum covering astronomy and ham radio issues. Special attention has been given to the ISS regarding its role in humanity and science, its orbit, and the everyday life of the astronaut. ISS courses were based on ESA's education tool, "ISS Education Kit."

2. ARISS Contact Featured at John Glenn Event

On Monday, February 20, an ARISS contact was held during the John Glenn Event at the State Records Office of Western Australia in Perth, via telebridge station AH6NM in Hawaii. The contact was held in celebration of the 50th anniversary of John Glenn's orbit of the Earth, when the population of Perth turned on its lights and Glenn observed the city was visible from space, leading to Perth's nickname, "City of Lights." The event opened with a pre-recorded video address given by Senator Glenn. Speeches from Australia's leading scientists were also given, followed by the ARISS contact with Dan Burbank, KC5ZSX on the ISS. The event was streamed live on the internet and was covered by television stations and ABC (Australian Broadcasting Corporation) Radio.

3. Italian Students Experience ARISS Contact

An Amateur Radio on the International Space Station (ARISS) contact was held between 1[illegible] Circolo Didattico Nicola Fornelli located in Bitonto, Italy and on-orbit astronaut Don Pettit, KD5MDT on Friday, February 24. The students had all their questions addressed concerning what it takes to become an astronaut and what it is like to live on the ISS. The contact highlighted their studies covering life in space, communications, space conquests and research, artificial satellites and the ISS. Approximately 300 people turned out for the event, including Italian Air Force officers and media representatives.

4. ARISS International Team Teleconference Held

The monthly ARISS International Team teleconference was held on Tuesday, February 21. Topics of discussion included a World Radiocommunication Conference 2012 (WRC-12) abstract concerning Nano and Pico satellites, the status of Ham TV and an update on the replacement VHF Ericsson. Minutes have been posted: http://ariss.rac.ca/arisstel2012-02-21.htm

5. Astronaut Training Status

Astronaut Alexander Gerst, who passed his amateur radio license exam on February 13, has been given the callsign KF5ONO. He is scheduled to fly with Expedition 40 in May 2014.

An introductory session is planned for Gregory Wiseman, KF5LKT (Expedition 40, May 2014) on Monday, February 27 and a preflight session is scheduled for Expedition 32 astronauts Sunita Williams, KD5PLB and Akihiko Hoshide, KE5DNI on Monday, March 5. Williams and Hoshide will fly later this year.

[ANS thanks Carol, KB3LKI, for the above information]

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In addition to regular membership, AMSAT offers membership in the President's Club. Members of the President's Club, as sustaining donors to AMSAT Project Funds, will be eligible to receive additional benefits. Application forms are available from the AMSAT Office.

73,
This week's ANS Editor,
Dee Interdonato, NB2F
nb2f at AMSAT dot org